Knowledge Management Newsletter

Issue 4 - Fall 2015

Exposing Knowledge

By Ricky Ma & David Oberhettinger

Should I search DocuShare, or should I search the Product Data Management System (PDMS)? A source of considerable annoyance at JPL has been the need to serially sign into and search multiple repositories just to determine if the sought-after knowledge even exists. After all, parallel searches across vast numbers of websites are commonplace outside the JPL domain.

JSearch. Launched in December 2014, JSearch provides faster access to the JPL intranet by allowing the user to perform searches that span across hundreds of internal domains, including unauthenticated JPL websites and wikis. This tool has spawned new conversations on open access and how we share more knowledge internally. Other internal engineering repositories will be changing their permissions to allow all JPL U.S. Persons to see more content so they can do their job better. Also, JPL Space now permits "faceted search," which can limit the search results to such categories as "Images," "People," etc.

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KM Champion's Corner

No Record Left Behind

By Mary Behshid and Dan Phipps

Are you cleaning out your workspace and don't know which papers you need to keep? Are you daunted at the prospect of shredding reams of paper? The JPL Records Management Group (2733) can assist you with records assessment, storage, and destruction. Your section also has an assigned Records Liaison who works with 2733 to identify where records should be stored and for how long.

JPL generates a lot of records. Some records provide objective evidence of our business and technical activities; other records capture knowledge critical to the JPL mission. While some records have a temporary value, others have a long-term or permanent value. You can view the Master List of Records Liaisons and Records Categories to identify your section's records liaison, find out how long you need to retain your records, and locate where those records are stored.

This service is part of a larger effort by the JPL Library, Archives and

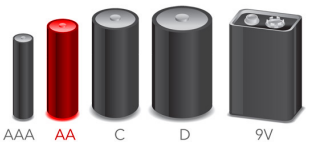
Records Section to ensure that valuable paper records are digitized and organized in institutionally- supported repositories for ease of access and reuse. 2733 also archives DocuShare project libraries that are no longer maintained by the projects.

In addition, 2733 conducts quarterly Records Management Awareness training. Your Records Liaison will let you know when this training is taking place. The schedule is also posted on the Records Management Group website.

To learn more, contact the JPL Records Manager, Mary Behshid, at 4-3507.

Obtain Technical Standards Free of Charge

By David Oberhettinger



Imagine the inconvenience if standard AA or AAA batteries did not exist, and you had to buy a unique, single-purpose battery from the manufacturer for every battery-powered item you own! Technical standards provide NASA programs and projects with uniform engineering and technical requirements. They capture lessons learned and new technology, provide a common base for interoperability, and facilitate engineering excellence. It would be difficult to determine if the results of a test were valid unless the test was conducted in accordance with some known and accepted standard.

Recently, a JPL engineer was planning to pay several hundred dollars to order a single copy of a two-page material specification. He didn't realize that the spec was available at no charge to JPL from the NASA Standards & Technical Assistance Resource Tool (START).* NASA purchases subscriptions from many standards developing organizations (SDOs), which permits NASA Centers to download their products at no charge. Presently, START subscribes to the full-text technical standards, specs, and handbooks of 58 SDOs, such as AIAA, ASTM, SAE, ASM, and ANSI, plus it provides access to NASA and other governmental agency standards. That's one-stop, instantaneous access to over 1.6 million documents at no cost to the user! The single access point is convenient and greatly simplifies the search for these documents. If you urgently need a standard from an SDO, and you find that START does not have a current subscription, NASA has some limited funding to purchase individual documents for you.

START also provides no-charge access to expensive engineering tools, including MAPTIS, Haystack Gold, IHS BOM Manager, 4D Online Parts Universe, efunda, and ESDU.

One limitation to bear in mind is that you may not be able to make copies; the downloaded document may be stamped with a copyright notice that limits distribution to you by name. Also, not all JPL subcontractor personnel have access to START because some

subcontracts already provide funds for the companies to purchase standards.

Exposing Knowledge

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Adaptive Learning. Searches of JPL Space now incorporate a neural network that learns from previous searches so that the most relevant results show at the top of your search results. These results are weighted for relevance by an algorithm that considers the indexed content and the selections and page rankings of previous searchers. This assures that user feedback is captured even where the users don't engage in active "thumbs up/thumbs down" page ranking.

Authenticated Search. Débuting in August 2015, it provides access to all the JPL website content a user has permission to view. The search feature draws from various technical repositories to which the user has access and customizes the search results based on the user's permissions. Additional content, like the Problem Reporting System are scheduled to be added.

Automatic Classification of Sensitive Materials. JPL has prototyped a machine learning model that performs pattern analysis to identify items of concern on the JPL network. Based on the frequency of unique words and word combinations, material that is potentially subject to export control or other restrictions is identified and flagged.

For Your Consideration

If critical knowledge gained on a flight project is not retained and shared for reuse, we face not only the cost and delay needed to restore it. There is also additional risk because the reproduced knowledge may not have been validated through test and flight.

"The Cycle of Forgetfulness"

By David Oberhettinger

Mishaps serve to remind us that low probability-- but high consequence-- events will occasionally occur. A momentary relaxation in our attention may prompt a near miss that makes us hyper vigilant for a period of time. Shoe leather slips as we walk an icy pavement. As the adrenalin rush subsides, we return to our nominal state. Over time, the effect of the lesson learned on our behavior may be greatly diminished until a recurrence of the triggering event.

> "*Lessons not learned in blood are soon forgotten.*"
> – Clyde Shelton, "Law Abiding Citizen"

This *Cycle of Forgetfulness* also characterizes the response of organizations to mishaps. When a threat to mission success or personnel safety is manifested in a mishap, it raises the signal-to-noise ratio relative to that of other latent risks. The organization may respond with a comprehensive campaign to fix the perceived institutional defect, including raising its profile and training personnel to be vigilant against future failings. But this "adrenalin rush" does not persist in the institutional bloodstream; vigilance degrades over time and with the emergence of new priorities. Flaws in NASA's safety processes led to the Challenger shuttle mission loss in 1986, but that alerting signal had merged back into the noise over the 17 years prior to the Columbia accident.

All personnel have an interest in breaking the *Cycle of Forgetfulness* by reflecting upon latent process flaws that may no longer receive widespread attention. The previous issue of this newsletter featured an article on "The 'JPLer' as a Knowledge Champion," promoting knowledge sharing and communicating lessons learned among teammates. Experience gained on projects provides valuable lessons on what can go awry. These lessons "learned in blood" can be infused back into the collective memory through technical interchange, mentoring, design reviews, peer reviews, lunchtime seminars, searches of the NASA lessons learned repository, and daily teamwork.

JPL Tube Upgrades

By Manson Yew

Enhancements were recently made to *JPL Tube*, the video library that receives about 750 "page views" per day from JPLers. *JPL Tube* presently hosts over 1100 videos, each of which feature a scrolling transcript that also permits full-text searches of the video collection's entire content. The search results produce one or more video snippet excerpts that each point to the full video.

In response to user suggestions, the *JPL Tube* enhancements include an ability for the JPL user to:

- Gain a 10x performance increase via an upgraded video encoder, plus improved indexing of transcripts
- Upload larger video files, with the limit raised from 4 GB to 8 GB, and also to bulk upload multiple videos
- Edit the transcript after it has been automatically generated
- Select among improved privacy options, including the ability to password-protect uploaded videos
- Receive a notification when a video has completed processing and been published
- Use new social features, including "liking", adding comments, and linking on JPL Gateway
- Check a checkbox that allows an upload to be viewable by non-U.S. Persons at JPL.

The non-U.S. Person option will permit *JPL Tube* to host such content as All Hands meetings and mandatory training videos for unrestricted access across the Lab.

The *JPL Tube* video library aids the Lab in its goal to retain important knowledge and make it more accessible for reuse. By making video content fully searchable, the use of video to document decisional and informational meetings and events becomes for the first time practical.

The **JPL Knowledge Management Newsletter** is intended to promote the capture, retention, and sharing of JPL intellectual capital. Please alert us to any ongoing knowledge activities:

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